



DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION SPECIFICATION

LOADBANKS, 30KW AND 50KW, 3 PHASE, 208/240 VOLTS

This amendment shall be made part of FAA-1365b dated September 18, 1968.

Page 1, Paragraph 1.1: Delete in its entirety and insert the following in lieu thereof:

1.1 Scope.- This specification covers the technical requirements of the Federal Aviation Administration for 3 phase, resistor type, load banks equipped with generator load controls for electrical loading of 30 KW and 50 KW emergency engine generators (a) to permit exercising and adjustments under a loaded condition without disturbing facility power and (b) to permit adjustment of the electrical load on the engine generator during emergency operation.

Page 4, Paragraph 3.4: Delete the last two sentences of the paragraph and insert the following in lieu thereof:

"They shall be mounted in the aluminum frame in three banks, each delta connected as indicated in Figure 2, and consist of a total of 8 heater strips per phase for the 30KW units and 13 heater strips per phase for the 50KW units. The heater strips shall be distributed between the three banks as indicated in Figure 2."

Page 4, Paragraph 3.5.1: Delete the first two sentences and insert the following in lieu thereof:

"The heater strip units of both the 30KW and the 50KW load banks shall be connected to twelve 5/16" bus bars arranged in four rows as shown in Figure 2. One end of each of three buses in each of the three load sections shall be turned down and threaded 5/16 inch-24. Each bus bar shall be supported by two insulated supports."

Page 4, Paragraph 3.5.2: Delete in its entirety and insert the following in lieu thereof:

"3.5.2 Cables.- Three 22 foot lengths of No. 2 stranded welding cable and three 22 foot lengths of No. 8 stranded welding cable shall be furnished with each load bank. Each end of each No. 2 cable shall be fitted with a one hole solder or solderless type lug, the rating of which shall not be less than 150 amperes. One end of each No. 8 cable shall be fitted with a one hole solder or solderless lug to fit a 5/16" terminal bolt and rated for not less than 60 amperes. The second end of each No. 8 cable shall be fitted with a single prong plug as shown on FAA Drawing A-5229, except that the handle of the plug may be of a similar non-breakable material, fuels and oil resistant, instead of neoprene as indicated."

Page 5, Paragraph 3.9: Delete in its entirety and insert the following in lieu thereof:

"3.9 Instruction book.- The instruction book shall consist of no less than the following requirements:

A general description of the use of the generator load control with the load bank to control the generator load.

A schematic diagram of the generator load control.

A typical wiring diagram of all units when connected to a generator output.

A parts list, listing all parts and components, the manufacturer, and the manufacturer's part number.

Two instruction books shall be included with each complete unit.

Page 5: Add the following paragraphs to the specification following paragraph 3.10.

3.11 Generator load control system.- A generator load control system consisting of a generator load control, a current transformer and an enclosure shall be furnished with each load bank. The system shall be capable of operation at nominal voltages of either 208 or 240 volts AC. The generator load control system will be used with the loadbank to maintain a desired minimum load on a diesel engine generator. Two parts of the load bank will be used for this purpose.

3.11.1 Generator load control.- The generator load control shall consist of two, adjustable, solid state load sensing circuits; two relays having SPST, NO, contacts rated for 30 amperes resistive load at 240 volts AC; and all auxilliary circuitry necessary to satisfy all requirements of this specification. The generator load control shall incorporate a time delay of approximately 5 seconds before the control becomes energized upon application of power. The control shall cause the activation of associated relays when the load monitoring circuits determine that the load current has dropped below the present levels and shall cause the deactivation of the associated relays when the load current again rises to a level approximately 10% above the present levels. The control shall utilize solid state components for all logic and timing functions. The control shall be designed to meet the Transient Overvoltage Withstand Test as defined by NEMA ICS, 1-109 and the Surge Withstand Capability Test as defined by ANSI C 37.90a - 1974. The control shall be designed to monitor load levels through the use of the current transformer required by paragraph 3.11.3 and shall not impose a load in excess of 2.5 volt amperes on the current transformer secondary. The control shall incorporate adjustable current level settings ranging from 1.0 to 5.0 amperes. The adjustment shall be made by potentiometer setting. The repetitive accuracy of either circuit to cause activation of the associated relay at any setting shall be within +3% over a voltage range of 70 to 110% of the nominal voltage and a temperature range of 20°F to 120°F. The control shall be provided with a terminal block which will accept solderless type connectors having a wire range of No. 22 AWG to No. 14 AWG for connections to the current transformer and the nominal voltage source.

3.11.2 Load contactors.- Two magnetic contactors rated for 208/240 volts AC operation having 3 pole, 70 ampere contacts, and mounted in NEMA-1 enclosures shall be furnished for application of the load bank to the engine generator load.

3.11.3 Current transformer.- One window type current transformer shall be furnished with each generator load control. The CT ratio shall be 200/5 for use with 50KW load banks and 150/5 for use with 30KW load banks. The transformer shall have screw terminals and all hardware necessary for panel mounting.

3.11.4 Enclosure.- The generator load control unit shall be mounted in a NEMA-1 enclosure not less than 8" x 10" x 4" with holes for wall mounting and fitted with a flat cover held in place with screws. The components shall be permanently mounted. The enclosure shall be primed and painted grey. Wall mounting hardware shall be accessible without removal of subpanels mounted within the enclosure.

Page 6: Insert the following paragraphs to the specification following paragraph 4.2.3:

4.3 Generator load control tests.

4.3.1 Type test.- One generator load control shall be tested as follows for compliance with this specification. During these tests no adjustments except those called for in this specification shall be allowed. All recorded data shall be submitted to FAA for review.

4.3.1.1 Operation test - 240 volts.- Using a nominal voltage of 240 volts AC and at room temperature, the control shall be adjusted for activation of its relays at a current level setting of one ampere. The input current level shall be varied from a level not less than 25% above the setting to a level not more than 25% below the setting and back to the original level. This test shall be repeated five times. The current levels at which each relay is activated, the current levels at which each relay is deactivated, the nominal voltage and the ambient temperature shall be recorded.

4.3.1.2 Adjustability.- The test called for in paragraph 4.3.1.1 shall be repeated with the control adjusted for activation of its relay at two, three, and four amperes.

4.3.1.3 Operation test - 208 volts.- The nominal voltage shall be reset to 208 volts AC and the tests called for in paragraph 4.3.1.1 shall be repeated with the control adjusted for activation of its relays at three amperes.

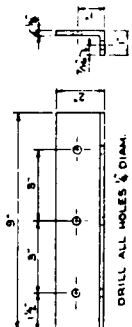
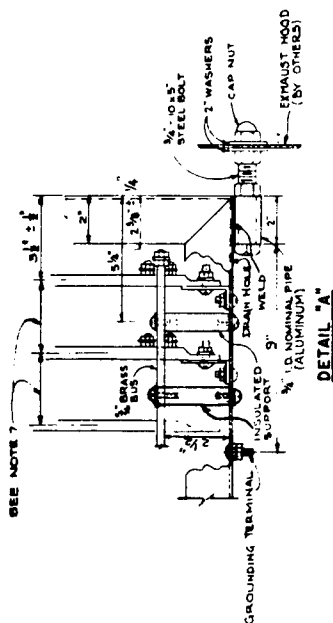
4.3.1.4 Ambient temperature test.- The nominal voltage shall be set at 208 volts AC and the control adjusted for activation of the relays as called for in the production test, paragraph 4.3.2. The tests called for in paragraph 4.3.1.1 shall be repeated at ambient temperatures of 20°F and 120°F.

4.3.2 Production test.- Each generator load control shall be tested as required in paragraph 4.3.1.1 using a nominal voltage of 208 volts AC and with the control adjusted for activation of one relay at 1.7 amperes and the second relay at 2.6 amperes when the load control is to be used with a 50KW load bank and for activation of one relay at 1.2 amperes and the second relay at 2.3 amperes when the load control is to be used with a 30KW load bank.

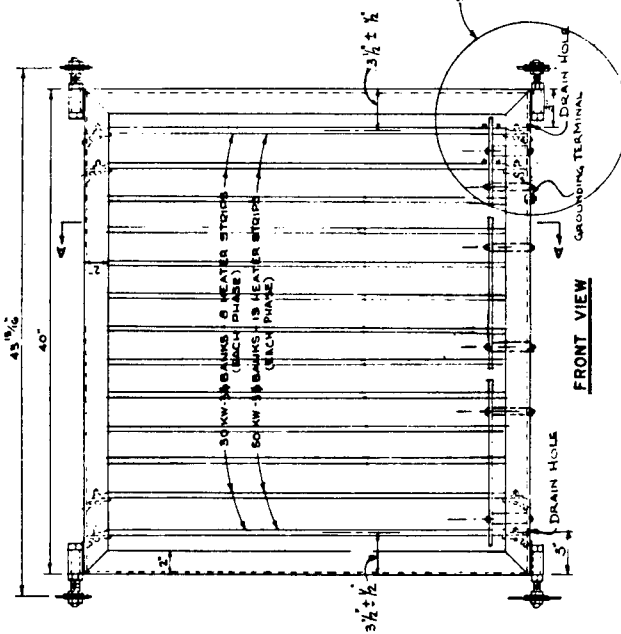
Page 9, Figure 1: Delete that portion of Figure 1 entitled "WIRING DIAGRAM (30 KW)".

Page 9, Figure 1: FRONT VIEW - Change the drawing of the bus bar and bus bar supports to show the bus bar split into three sections as indicated in Figure 2 of this amendment and to show each section of bus bar supported by two insulated supports.

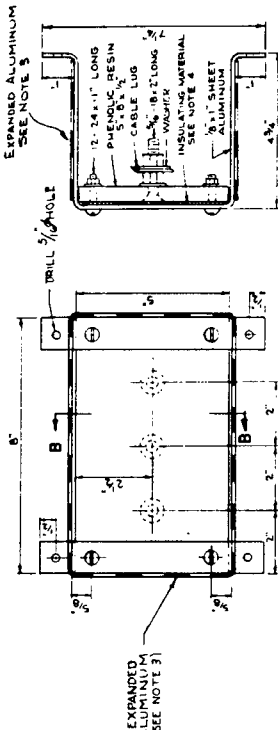
Page 10: Insert Figure 2 of this amendment.



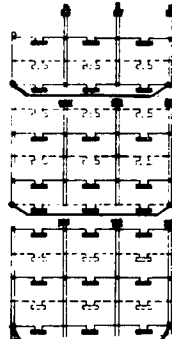
HEATER SUPPORT
(ALUMINUM)



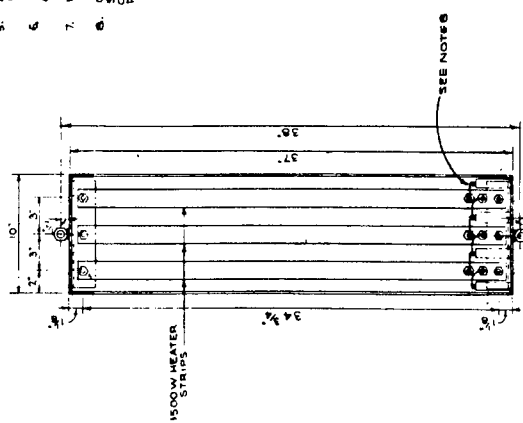
FRONT VIEW



SECTION B-B



WIRING DIAGRAM (30 KW)



SECTION A-A

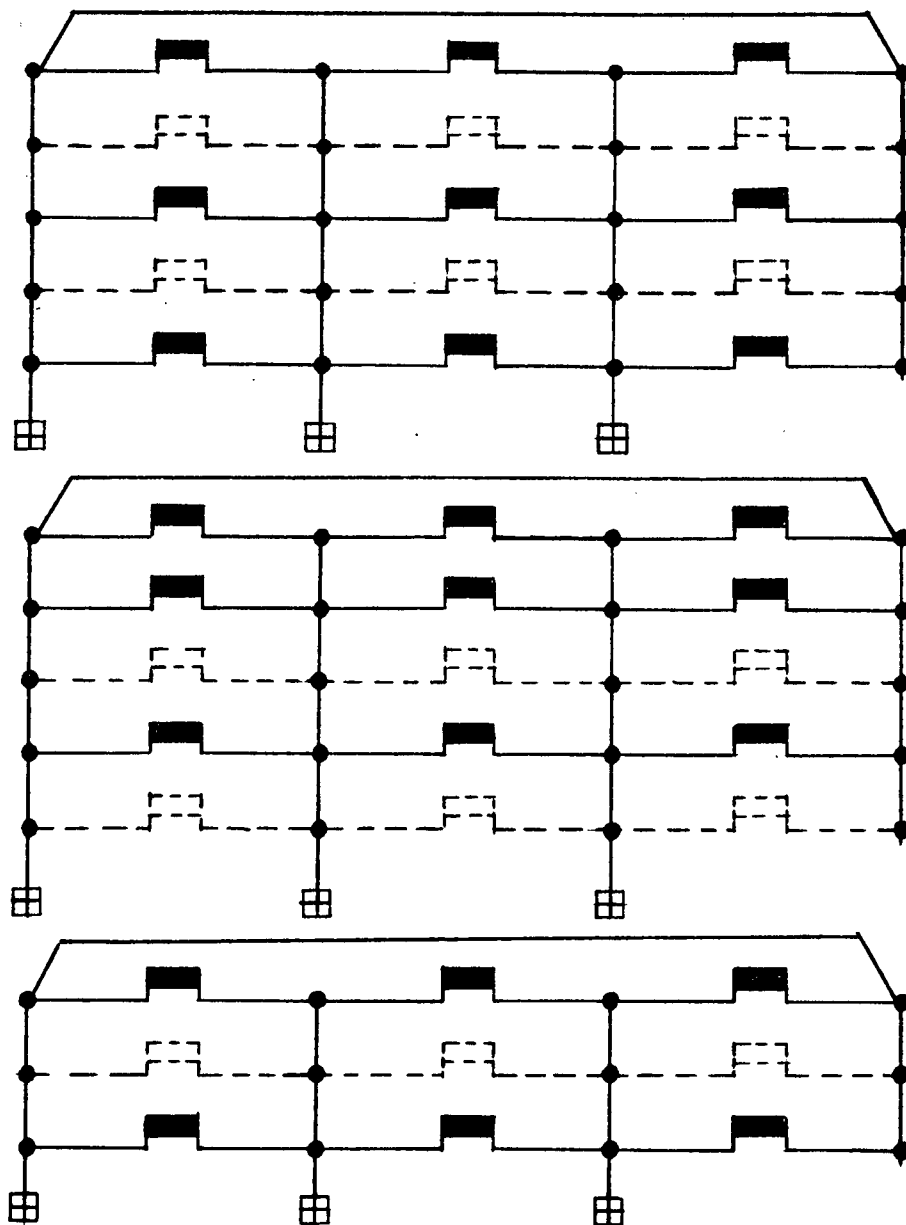
NOTES

1. FRAME TO BE 6062 T3 MIN. PLAT. MILL FINISHED ALUMINUM SHEET ALLOY 5052. O.
2. INSTALL ADDITIONAL 1/2\"/>

LOAD BANK RESISTOR TYPE
FOR 42\"/>

FILE: D-15067

FIGURE 1



Broken lines indicate location of additional strip heaters required for 50 KW load banks.

WIRING SCHEMATIC FOR 30/50 KW LOAD BANKS
USED WITH GENERATOR LOAD CONTROL

FIGURE 2

